



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/737,334	12/16/2003	Richard A. Craig	50005-167	7550
32215	7590	03/24/2006		
KLARQUIST SPARKMAN, LLP 121 SW SALMON STREET, SUITE 1600 ONE WORLD TRADE CENTER PORTLAND, OR 97204			EXAMINER PALABRICA, RICARDO J	
			ART UNIT 3663	PAPER NUMBER

DATE MAILED: 03/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/737,334	<b>Applicant(s)</b> CRAIG ET AL.	
	<b>Examiner</b> Rick Palabrica	<b>Art Unit</b> 3663	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 09 March 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 16-46 is/are pending in the application.
- 4a) Of the above claim(s) 21,23,24,35 and 38 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 16-20,22,25-34,36,37 and 39-46 is/are rejected.
- 7) ☒ Claim(s) 29 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

### DETAILED ACTION

1. Applicant's 3/9/06 Amendment, which directly amended claims 16, 25, 29, 33 and 42, and traversed the rejection of claims in the 12/5/05 Office action is acknowledged. Applicant's arguments have been fully considered but they are not persuasive.

The examiner's responses to applicant's traversal of the claim rejections based on the applied art are presented in sections 2-5 below, and the responses to the claim rejections based on 35 U.S.C. 112, 1<sup>st</sup> and 2<sup>nd</sup> paragraphs are presented in sections 6 and 7 below.

2. Applicant traversed applied art, Gomberg, on the grounds that he fails to teach or suggest: a) "detecting neutrons following a time delay as recited in independent claims 16, 25 and 29"; b) "detecting hydrogenous material." The examiner disagrees.

As to argument a), the claims (e.g. claim 16) recite the limitation, "measuring a portion of said stream of fast neutrons that is backscattered from hydrogen in said target after a time delay beginning when said stream of fast neutrons is emitted from said source." Underlining provided. As presently set forth, the claims clearly state that the measurement is performed NOT at the instant when the fast neutrons are emitted from the source BUT after a certain, unspecified time following said fast neutron emission. This is exactly what Gomberg does, which applicant himself affirms as evidenced by his own argument and citation of the relevant section in Gomberg. Note that Gomberg only counts the neutrons "having a transit time equal to the interval required to travel from

Art Unit: 3663

the source to the object 22 being interrogated and back to the detector." Thus, there is a time delay in Gomberg's measurement, i.e., the time it takes a neutron to travel from the source and to travel back to be detected by the detector! The reference point for Gomberg's time delay is the instant when neutrons leave the source, as in applicant's case.

As to argument b), Gomberg specifically discloses detection of hydrogenous materials (see col. 9, line 40).

With respect to the rejection of claims 17, 26 and 30, applicant argues, "[t]ime of flight measurement need not be limited to only a window of detection and need not require disabling the neutron sensor." Underlining provided. Applicant then admits that time of flight measurement can be limited to a window of detection and can be required to disable the neutron sensor. Based on this admission, Gomberg meets the limitations of said claims.

With respect to claims 18, 19, 27, 31 and 32, applicant argues that Gomberg is directed to detecting neutrons backscattered by elements heavier than hydrogen. The examiner disagrees for the reason given with respect to applicant's argument b) above.

With respect to claim 25, again applicant argues that Gomberg does not discriminate against neutrons scattered by non-hydrogenous materials. Again the examiner disagrees for the same reason given in response to argument b) above.

With respect to applicant arguments regarding the rejection of claims 34 and 42, see response to arguments a) and b) above.

Art Unit: 3663

3. Applicant traversed Schultz on the same grounds that he cites for Gomberg, i.e., no teaching on time delay in measurement of backscattered neutrons and no teaching on detection of hydrogenous materials. The examiner disagrees.

Schultz clearly states:

"The fourth technique in the combination of the invention is hydrogen density imaging, preferably at high resolution. Hydrogen is also a component of many explosives, particularly plastic explosives. Hydrogen density imaging involves interrogating the package with fast neutrons, for example from a neutron source providing energies ranging from 2 MeV up to approximately 14 MeV. The nuclei of hydrogen atoms scatter incident neutrons. Arrays of position-sensitive detectors on up to all six sides of the detection chamber detect fast neutrons after they have interrogated the package to form a high-resolution hydrogen density image." Underlining provided. See col. 3, lines 57+

The elapsed time beginning from emission of the neutrons, their interaction and scattering by the hydrogen atoms in the explosive, and their eventual detection by the detectors on all sides of the chamber, reads on applicant's claim language, "time delay".

Note that any one of the plurality of detectors in Schultz detects backscattered neutrons from the hydrogen atoms. While applicant might argue that these detectors also detect some neutrons that are not backscattered, such is not precluded by the claims. The claims recite the inclusive, open-ended transitional term "comprising", which is synonymous with "including", "containing", or "characterized by", and does not exclude additional, unrecited elements. See, e.g., MPEP 2111.03 and *Genentech, Inc. v. Chiron Corp.*, 112 F.3d 495, 501, 42 USPQ2d 1608, 1613 (Fed. Cir. 1997) ("Comprising" is a term of art used in claim language which means that the named elements are essential, but other elements may be added and still form a construct within the scope of the claim).

Applicant's arguments traversing the rejection of claims 17, 26, 30, as well as claims 18, 19, 27, 31 and 32, and those for claim 25 and claims 36, 37, 39 and 40, are similar to the arguments he makes for Gomberg. The examiner disagrees for the same reasons given above for Gomberg.

4. Applicant traversed the rejection of claim 41 based on the combination of either Gomberg or Schultz with either one of Hahn or Buchanan, because the primary references do not teach measuring backscattered neutron after a time delay. The examiner disagrees for the same reasons given in sections 2 and 3 above.

5. As to applicant's traverse of the rejection of claims 44-46 based on either Gomberg or Schultz, see the examiner's response in sections 2 and 3 above.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 16-20, 22, 29-34, 36, 37 and 39-46 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claims contain subject matter which was not described in the specification in such a way as to enable

one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

As to claims 16 and 29, there is neither an adequate description nor enabling disclosure as what is all encompassed by the term, "a portion of said stream of fast neutrons. For example, does "portion" mean, 10%, 50%, etc. and also which part of the stream, e.g., near the beginning, the middle or near the end of the stream?

Applicant traversed the above rejection on the ground that the specification on page 5, lines 25-29, provide support for this so-called "portion" that is measured. The examiner disagrees. The specification on page 5 discloses that the detector of the present invention: a) does not register any neutrons that return to the sensor during the time delay; and b) may further not register any neutrons that return to the sensor after an employed window. Based on item b) and the term, "may", there is clearly no support for the "portion" being measured because it is conditional as to whether neutrons returning after the window are registered or not registered.

7. Claims 16-20, 22, 29-34, 36, 37, and 39-46 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 16 and 29 are vague, indefinite and incomplete, and its metes and bounds cannot be determined, particularly in regard to the term/phrase "a portion of stream of fast neutrons." As to applicant's traverse of this rejection, see examiner's response in section above.

As to claim 19, the term/phrase "upper level discriminator setting" is a relative term that renders the claim indefinite. Applicant traversed this rejection by citing Figs. 6a and 6b as providing support for said "upper discriminator setting". However, note that the specification states that Fig. 6b is for a case where there is no upper-level discriminator. It is unclear how one can show support for a feature that is not even shown in a figure that is being used as a basis for one's argument. The examiner further notes that there is no antecedent basis for "upper discriminator setting" because not all pulse height discrimination measurements inherently use such setting.

Claim 42 recites the limitation "vehicle with extension arm" in line 2. There is insufficient antecedent basis for this limitation in the claim. As per applicant's request for clarification, this limitation does not have a proper antecedent basis because not all sensing heads inherently have a vehicle with an extension arm being used for support.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 16-20, 22, 25-33, and 43 are rejected under 35 U.S.C. 102(b) as being anticipated by either one of Gomberg U.S. 4,864,142) or Schultz (U.S. 5,200,626).

The reasons are the same as those given in section 4 of the 12/7/05 Office action, as further clarified in sections 2-5 above, which reasons are herein incorporated.

Art Unit: 3663

9. Claims 34 and 42 are rejected under 35 U.S.C.102(b) as being anticipated by Gomberg.

The reasons are the same as those given in section 5 of the 12/7/05 Office action, as further clarified in sections 2-5 above, which reasons are herein incorporated.

10. Claims 36, 37, 39 and 40 are rejected under 35 U.S.C. 102(b) as being anticipated by Schultz et al.

The reasons are the same as those given in section 6 of the 12/7/05 Office action, as further clarified in sections 2-5 above, which reasons are herein incorporated.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claim 41 is rejected under 35 U.S.C. 103(b) as being unpatentable over either one of Gomberg or Schultz et al. in view of either Hahn (U.S. 3,577,158) or Buchanan (U.S. 5,083,029).

The reasons are the same as those given in section 7 of the 12/7/05 Office action, as further clarified in sections 2-5 above, which reasons are herein incorporated.

Art Unit: 3663

12. Claims 44-46 are rejected under 35 U.S.C. 103(b) as being unpatentable over either one of Gomberg or Schultz et al.

The reasons are the same as those given in section 8 of the 12/7/05 Office action, as further clarified in sections 2-5 above, which reasons are herein incorporated.

### ***Claim Objections***

13. Claim 29 is objected to because of the following informalities: the word "is" on line 4 is superfluous. Appropriate correction is required.

### ***Conclusion***

14. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rick Palabrica whose telephone number is 571-272-6880. The examiner can normally be reached on 6:30-5:00, Mon-Thurs.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Keith can be reached on 571-272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RJP  
March 22, 2006

  
JACK KEITH  
SUPERVISORY PATENT EXAMINER